

What is claimed is:

1. A method for updating the configuration of a programmable logic device-based system ("PLD system") over a packet-based network using a protocol, comprising the steps of:  
operating the PLD system in accordance with first configuration data;

5 sending at least a first packet from a computing system to the PLD system over the network;

in response to the first packet, sending at least a second packet from the PLD system to the computing system over the network, wherein the second packet contains information identifying the PLD system and also information indicative of one or more commands in  
10 accordance with the protocol, wherein the PLD system operates in accordance with the one or more commands;

in response to the second packet, sending at least a third packet from the computing system to the PLD system, wherein the third packet comprises a command in accordance with the protocol and contains at least second configuration data for the PLD system;

15 loading the second configuration into the PLD system; and

operating the PLD system in accordance with the second configuration data.

2. The method of claim 1, further comprising the step of, after the third packet is received by the PLD system, saving the second configuration data contained in the third packet in non-volatile memory of the system.

20 3. The method of claim 2, wherein the non-volatile memory comprises Flash memory, electrically erasable and programmable read only memory or battery-backed-up random access memory.

4. The method of claim 1, wherein a plurality of third packets are received by the PLD system, wherein, after receiving each of the third packets, the PLD system sends at least a  
25 fourth packet to the computing system over the network, wherein the fourth packets each acknowledge receipt of a corresponding one of the third packets.

5. The method of claim 4, wherein after receiving each of the third packets, the PLD system saves second configuration data from the third packets in non-volatile memory of the system.

6. The method of claim 5, wherein the PLD system saves the second configuration data in the non-volatile memory of the system from each of the third packets prior to sending each of the fourth packets.

5 7. The method of claim 5, wherein, after receipt by the computing system of a fourth packet that acknowledges receipt by the PLD system of a final third packet, the computing system sends at least a fifth packet to the PLD system, wherein, in response to the fifth packet, the PLD system saves one or more data indicating that all of the second configuration data has been received and stored in the non-volatile memory.

10 8. The method of claim 1, wherein the second configuration data is loaded into the PLD system in response to a user command from a user.

9. The method of claim 8, wherein the user command comprises a command input by a switch.

10. The method of claim 9, wherein the switch comprises a physical switch on the PLD system.

15 11. The method of claim 8, wherein the user command comprises a command entered via the computing system.

12. The method of claim 1, wherein one or more display devices provide visual feedback of the status of the PLD system.

20 13. The method of claim 12, wherein the one or more display devices comprise one or more LEDs.

14. The method of claim 12, wherein the one or more display devices comprise a liquid crystal display.

15. The method of claim 1, wherein the PLD system provides audio feedback indicative of the status of the PLD system.

25 16. The method of claim 12, wherein at least one LED indicates that the step of loading the second configuration data into the PLD system is in process.

17. The method of claim 1, wherein the PLD system processes packets sent from the computing system.

30 18. The method of claim 1, wherein the PLD system extracts commands in accordance with the protocol from the packets sent from the computing system.

19. The method of claim 1, wherein the second packet includes a version identifier for the PLD system.

20. The method of claim 1, wherein the second packet contains information that identifies a plurality of commands in accordance with the protocol to which the PLD system responds.

21. The method of claim 1, wherein the second packet contains information that is indicative of a location coupled to the network, wherein the location contains information that identifies a plurality of commands in accordance with the protocol to which the PLD system responds.

22. The method of claim 21, wherein the location comprises storage coupled to the computing system.

23. The method of claim 21, wherein the location comprises storage on a second network, wherein the computing system accesses the storage via the second network.

24. The method of claim 23, wherein the information that is indicative of the location comprises an address of a node on the second network.

25. The method of claim 23, wherein the second network comprises an Internet network.

26. The method of claim 25, wherein the information that is indicative of the location comprises a URL.

27. The method of claim 1, wherein the plurality of commands include one or more first commands to which the PLD system responds and also include one or more second commands to which the PLD system responds.

28. The method of claim 27, wherein the first commands comprise core commands to which at least a second PLD system also responds.

29. The method of claim 28, wherein the second commands comprise custom commands to which the second PLD system does not respond.

30. The method of claim 1, wherein the network comprises a local area network.

31. The method of claim 1, wherein the network comprises an Ethernet-based network.

32. The method of claim 1, wherein at least certain of the first, second or third packets comprise UDP packets.

33. The method of claim 1, wherein at least certain of the first, second or third packets comprise TCP packets.

34. The method of claim 1, wherein at least certain of the first, second or third packets comprise Ethernet packets.

5 35. The method of claim 1, wherein at least certain of the first, second or third packets comprise link layer packets.

36. The method of claim 1, wherein at least certain of the first, second or third packets comprise network layer packets.

10 37. The method of claim 1, wherein at least certain of the first, second or third packets comprise IP packets.

38. The method of claim 1, wherein at least certain of the first, second or third packets comprise transport layer packets.

39. The method of claim 1, wherein at least certain of the first, second or third packets comprise IPX packets.

15 40. The method of claim 1, wherein at least certain of the packets sent by the computing system comprise broadcast packets having a predetermined address that are directed to a first predetermined port.

20 41. The method of claim 1, wherein at least certain of the packets sent by the PLD system comprise packets having a predetermined source address that are directed to a second predetermined port.

42. The method of claim 1, wherein the PLD system does not implement a TCP/IP stack.

43. The method of claim 1, wherein the PLD system comprises an FPGA.

25 44. The method of claim 1, wherein the PLD system comprises an Internet security system.

45. The method of claim 44, wherein the Internet security system comprises a firewall system.

46. The method of claim 45, wherein the firewall system filters packets received from a second network.

47. The method of claim 1, wherein the PLD system comprises a device selected from the group consisting of a PDA, a mobile telephone, a portable computer, a game system, a household appliance, a video recording system and a paging device.

48. The method of claim 45, wherein the firewall system operates in accordance with a first set of filtering rules based on the first configuration data, wherein the firewall system operates in accordance with a second set of filtering rules based on the second configuration data.

49. The method of claim 1, wherein the information identifying the one or more commands in accordance with the protocol to which the PLD system responds comprises XML code.

50. The method of claim 1, wherein the PLD system includes a first logic unit that processes packets sent by the computing system, wherein the first logic unit identifies one or more commands in the packets sent by the computing system.

51. The method of claim 1, wherein the PLD system includes one or more second logic units coupled to the first logic unit that carries out one or more operations that correspond to the one or more commands.

52. The method of claim 51, wherein the PLD system includes one or more third logic units, wherein the third logic units carry out one or more logic operations that correspond to packets that the system transmits to the computing system.

53. The method of claim 1, wherein the PLD system includes first and second logic portions, wherein a first logic portion operates to communicate packets in accordance with the protocol with the computing system, wherein the second logic portion operates to carry out a process that does not comprise communicating packets in accordance with the protocol with the computing system.

54. The method of claim 1, wherein the computing system operates in response to software that is transmitted to the computing system from the PLD system.

55. The method of claim 1, wherein the computing system operates in response to software that is stored in a location identified by a packet from the PLD system.

56. The method of claim 55, wherein the location comprises a storage location on a second network coupled to the computing system.

57. The method of claim 56, wherein the location is identified by a network address or URL.

58. The method of claim 55, wherein the location is determined from an identifier for the PLD system.

5 59. The method of claim 1, wherein the PLD system operates to perform a first process in accordance with the first configuration data, and wherein the PLD system operates to perform a second process in accordance with the second configuration data..

60. The method of claim 59, wherein the first process is different from the second process.

10 61. The method of claim 59, wherein, after the PLD system operates to perform the first process, wherein in response an input the PLD system reconfigures to operate to receive packets in accordance with the one or more commands and no longer operates to perform the first process; wherein after loading of the second configuration data the PLD system operates to perform the second process and no longer operates to receive packets in accordance with the one or more commands.

15 62. The method of claim 1, wherein the PLD system comprises programmable logic having at least a first logic portion and a second logic portion, wherein, in response to loading of the second configuration data, the second logic portion is reconfigured and the first logic portion is not reconfigured.